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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,866	02/11/2004	Marc O'Donnell Schweitzer	008834 USA/CPS/IBSS/LAP	6117

7590 01/23/2006

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EXAMINER	
CHAUDHRY, SAEED T	

ART UNIT	PAPER NUMBER
1746	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/777,866	SCHWEITZER ET AL.	
	Examiner	Art Unit	
	Saeed T. Chaudhry	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-28 is/are pending in the application.

4a) Of the above claim(s) 12-28 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) 1-28 are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 11/04,7/05, 8/04,.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restriction

Restriction to one of the following inventions is required under 35 U.S.C. 121:

Group I, Claims 1-11, drawn to a method of cleaning a processing chamber by cooling, classified in Class 134, subclass 22.1.

Group II, Claims 12-20, drawn to a method of cleaning by heating, classified in Class 134, subclass 19.

Group III, claims 21-22, drawn to a method of cleaning by cooling, heating and grit blasting, classified in Class 134, subclass 6.

Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions Group I, claims 1-11, requires to cool the surface, Group II, claims 12-20, requires to heat the surface and Group III, claims 21-22, requires to heating, cooling and grit blasting.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, have acquired a separate status in the art because of their recognized divergent subject matter, the search required for Group I is not required for Groups, II and III, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Ashok K. Janah on January 18, 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11. Affirmation of this election must be made by applicant in responding to this Office action.

Claims 12-22 are withdrawn from further consideration by the Examiner, 37 C.F.R. § 1.142(b), as being drawn to a non-elected invention.

Joint Inventors

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 C.F.R. § 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently-filed petition under 37 C.F.R. § 1.48(b) and by the fee required under 37 C.F.R. § 1.17(h).

Drawings

The drawings are objected to because in the specification characters "104", "106", "112", etc. in page 6, at first paragraph are recited. These elements are not present in Figure 1 as mentioned in the first paragraph. Reference characters mentioned in the description must appear in the drawings. See MPEP 608.02(O)5. Correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (c) he has abandoned the invention.
> (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.
(f) he did not himself invent the subject matter sought to be patented.
(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

Claims 1-2, and 9 are rejected under 35 U.S.C. § 102(b) as being anticipated by Sasaki.

Sasaki (6,214,130) discloses a method for cleaning the inside of a pipe in a semiconductor device fabricating machine, wherein the semiconductor device fabricating machine having the heat-treating pipe is a CVD chamber by supplying liquid nitrogen to the pipe, wherein the cooling effect by the temperature of the liquid nitrogen itself having a boiling point –197° C and a boiling of the liquid nitrogen, contaminant adhered to the inside of the pipe is peeled off and removed away. The cooling effect causes the contaminant to contract so that an adhering force of the contaminant drops because of a difference in thermal expansion coefficient between the contaminant and a material of the pipe (see col. 1, lines 7-13, 54 through col. 3, line 11). The inorganic contaminant are Na, Fe and Cu (see col. 2, lines 64-65). The temperature of the surface inherently below –40° C because the boiling temperature of the nitrogen is –197° C and the thermal expansion coefficient of the surface is at least 2 times to the thermal coefficient of the contaminants. Sasaki discloses all the limitations as claimed herein. Therefore, Sasaki anticipated the claimed process.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made

The factual inquiries set forth in Graham v. John Deere Co., 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or unobviousness.

Claims 3-4, 6 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sasaki in view of Braton et al.

Sasaki was discussed supra. However, the reference fails to disclose immersing the surface in liquid nitrogen or grit blasting or heating the surface after cooling or a texture surface.

Braton et al (3,934,379) disclose a method for removing a layers of organic material build up on a support for articles during surface coating by applying a liquefied inert gas such as nitrogen to the support, which cause embrittlement of the material and then separating the embrittled material (see abstract). The embrittled material is separated by blasting with a particulate abrasive material at a high velocity. To change the temperature of the surface can be performed by immersing the surface in liquefied gas or spraying liquefied gas on the surface (see claims 1-13).

It is well known in the art of cleaning that surfaces having different material have different thermal expansion and contraction as disclosed by Sasaki and Braton et al. Therefore, it would have been obvious at the time applicant invented the claimed process to incorporate the cited steps of immersing and blasting as disclosed by Braton et al into the process of Sasaki for the purpose of sudden change in the temperature by immersing or spraying. Spraying and immersion are interchangeable because both have given the same results. Further, one of

ordinary skill in the art would use a blasting step after cooling the surface for the removal of the material as disclosed by Braton et al to enhance the removal of the material from the surface. Further, one of ordinary skill in the art would expect that this process would be effective to remove material from a texture surface also if the coefficients of the thermal expansion and contraction is different for material and the surface.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki in view of Barton et al as applied to claim 1 above, and further in view of Sakurai et al.

Sasaki and Barton et al were discussed supra. However, the references fail to use ultrasonic agitation.

Sakurai et al (6,082,373) disclose a method for removing material from a surface by immersing the substrate in a bath of nitrogen and applying ultrasonic vibration to the bath, which consequently remove impurities adhering to the surface of the substrate (see col. 5, line 54 to col. 6, line 3).

It would have been obvious at the time applicant invented the claimed process to incorporate ultrasonic vibration as disclosed by Sakurai et al into the processes of Sasaki and Barton et al to enhance the removal effect with ultrasonic vibration. One of ordinary skill in the art would expect that removal of embrittled material would be interchangeable with blasting or ultrasonic vibration.

Claims 6, 7-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sasaki in view of Klee et al.

Sasaki was discussed supra. However, the reference fails to disclose immersing the surface in liquid nitrogen or grit blasting or heating the surface after cooling or a texture surface.

Klee et al (4,627,197) disclose a method for removal of adherent coatings from articles by cryogenic embrittlement of the coatings and blasting of the embrittled coatings with impact media, wherein a chamber is initially cooled down progressively to a supercold preset temperature level considerably below that required for embrittlement of the coatings. The blasting is continued for a fixed time period; during part of the blasting time the temperature of the chamber is permitted to rise to a second temperature level (see abstract). The second preset temperature is 25 to 100 F (see claims).

It would have been obvious at the time applicant invented the claimed process to incorporate the cited steps of blasting and heating the surface as disclosed by Klee et al into the process of Sasaki for the purpose to remove the contaminated material from the surface. One of ordinary skill in the art would increase the temperature after cooling with liquid nitrogen to reduce the consumption of liquid nitrogen as disclosed by Klee et al. Further one of ordinary skill in the art would manipulate the temperature of surface for better and efficient results.

Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Sasaki in view of Hatano.

Sasaki was discussed supra. However, the reference fails to disclose that the surface of the chamber is stainless steel.

Hatano (5,954,887) discloses that the CVD apparatus 2 has a process chamber made of stainless steel (see col. 3, lines 52-55).

It is well known in the art that the CVD chamber are made of stainless steel as disclosed by Hatano. Therefore, one of ordinary skill in the art would expect that Sasaki process would remove contaminants from the stainless steel chamber surfaces because Sasaki process disclosed to remove contaminants from the surface of the CVD chamber pipe.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saeed T. Chaudhry whose telephone number is (571) 272-1298. The examiner can normally be reached on Monday-Friday from 9:30 A.M. to 4:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Barr, can be reached on (571)-272-1414. The fax phone number for non-final is (703)-872-9306.

When filing a FAX in Gp 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1700.

Saeed T. Chaudhry
Patent Examiner

MICHAEL BARR
SUPERVISORY PATENT EXAMINER